

Science and literacy

Ideas about literacy

There is a growing acceptance by the literacy education community that 'literacy' can be conceptualised as a range of different types of social practices rather than one universal attribute or learning capacity.

From this perspective, there are many different literacies, such as: community or everyday literacy, street literacy, visual literacy, computer literacy and school subject literacy (Gee, 2004; Street, 1995).

Each of these literacies may entail reading and writing, but also involve talking, thinking, listening, viewing and acting for a wide range of purposes.

Defining 'everyday literacies'

These are processes and practices that represent what learners can know, do or demonstrate when they communicate, such as: small group discussion; drawings; reading aloud; written, verbal and visual explanations; and gestural demonstrations.

These literacies are not just oral or written language but involve multiple modes, including:

- verbal language (oral and written)
- visual language (graphs, tables, drawings, diagrams)
- mathematical language
- embodied language (gestural, role-play)
- a combination of some or all these modes such as captioned diagrams or spoken commentary to support PowerPoint presentations.

Examples of everyday literacies

- using vernacular language and slang
- reading street signs
- playing computer games
- sending and receiving emails
- talking with friends
- watching television programs
- presenting a verbal thank you
- play-acting with friends
- solving a problem through discussion
- calculating the correct change when buying something.

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Review the everyday literacies that you have engaged with today and record them here:

Scientific literacy

Scientific literacy is a high priority for all citizens, helping them to:

- be interested in, and understand the world around them
- engage in the discourses of and about science
- be sceptical and questioning of claims made by others about scientific matters
- be able to identify questions, investigate and draw evidence-based conclusions, and
- make informed decisions about the environment, and their own health and well-being (Goodrum, Hackling and Rennie, 2001).

The literacies of science

To be scientifically literate, we need to be competent in using a range of 'literacies of science', that is, the particular language practices that record and communicate science activities, processes and findings. It is also knowing how and why to construct and interpret science-based claims.

Examples of literacies of science:

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| • using scientific language and vocabulary | • procedures (used to describe how something is done, and includes directions and instructions) |
| • reading a weather report | • factual recounts (describes past experiences) |
| • using science based learning objects on a computer | • explanations (describe why or how things happen) |
| • discussing a new diet and fitness plan | • information reports (used to organise and record factual information) |
| • reading labels before selecting a product to buy | • expositions (used to persuade others to act or think a particular way). |
| • reading and constructing graphs, tables, diagrams, charts | |
| • keeping records in science journals | |

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Review the literacies of science that you have engaged with today and record them here:

Thinking about the literacies of science

Think about the questions. **Pair** with a partner. **Share** your ideas.

- What are literacies of science?
- What is the relationship between literacies of science and everyday literacies?
- Do you have any concerns about students learning the literacies of science?

References

Gee, J. P. (2004). *Language in the science classroom: Academic social languages as the heart of school-based literacy*. In E. W. Saul (Ed.), *Crossing borders in literacy and science instruction: Perspectives in theory and practice* (pp. 13-32). Newark, DE: International Reading Association/National Science Teachers Association.

Goodrum, D., Hackling, M. and Rennie, L. (2001). *The status and quality of teaching and learning of science in Australian schools: A research report*. Canberra: Department of Education, Training and Youth Affairs.

Street, B. (1995). *Social literacies: Critical approaches to literacy development, ethnography, and education*. Reading MA: Addison-Wesley Higher Education.

Additional reading

Unsworth, L. (2001). *Teaching Multiliteracies across the Curriculum: Changing contexts of text and images in classroom practice*. Buckingham, UK: Open University Press.